How to solve the howling of energy storage inductors

Why is an inductor lossless?

Without the internal resistance,the inductor is lossless because it cannot produce heat or light from the available energy. Therefore,all the energy supplied by the source ends up being stored in the generated magnetic field - exactly how energy is stored in rubber bands when stretched.

What is the rate of energy storage in a Magnetic Inductor?

Thus,the power delivered to the inductor p = v *i is also zero,which means that the rate of energy storage is zero as well. Therefore,the energy is only stored inside the inductor before its current reaches its maximum steady-state value,Im. After the current becomes constant,the energy within the magnetic becomes constant as well.

What happens when an excited inductor loses connection to the supply?

When an excited inductor loses connection to the supply,it quickly breaks its magnetic fieldsand tries to continue the connection to the supply with the converted energy. This energy can cause destructive arcing around the point where the connection is lost. Thus,the connectivity of the circuit must be continuously observed.

How does an inductor work?

The inductor behaves like a load and stores energy to prevent ripples from producing excess current. It acts like a current supply when the ripple reduces the current value. In each case,the inductor prevents the ripples from influencing the regulated DC.

Does an inductor take more energy?

Thus,the inductor takes no more energy,albeit its internal resistance does cause some losses as the current flows through it,such that Plosses= Im2R. These losses are unavoidable because the constant current flow is necessary to maintain the magnetic fields.

How to choose a good inductor?

But the inductor's inductance value must be selected to perform both functions optimally. Large inductor values give low ripples and maximum power output. However, the value should not be too high because the inductors can get very bulky and provide a poor transient response.

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